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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/995,033

11/27/2001

Sam Y. Guo

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05/28/2004

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EXAMINER

DEBERADINIS, ROBERT L

ART UNIT

PAPER NUMBER

2836

DATE MAILED: 05/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

272

Office Action Summary	Applicati n N . 09/995,033	Applicant(s) GUO, SAM Y.	
	Examiner Robert DeBeradinis	Art Unit 2836	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
 a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The reply filed 3/19/04 consists of amendments to claims 1, 7 and remarks related to rejection of claims. The claims are not allowable for the following reasons.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 5-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over MIZUNO 6,011,416 in view of LEE 6,194,990.

Regarding claims 1.

MIZUNO discloses a control circuit of the type comprising a shunt resistor (3) and a controllable high-speed solid state switch device (2) mounted on a circuit board (1) for connecting a power supply (B) to a load device (L):

A detector (6) mounted on the circuit board (1) and having inputs connected across the shunt resistor and an output connected to control the state of the switch device;

The circuit board having parallel opposite faces (obvious characteristic of a circuit board).

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MIZUNO does not disclose wherein the shunt resistor is arranged, on the board, having continuous conductor traces disposed in overlying relationship on said opposite faces.

LEE discloses a printed circuit board with a multiplayer integral thin-film resistor having continuous conductor traces disposed in overlying relationship on said opposite faces (abstract and figures 1, 2) resulting in canceling out the self inductance in the resistor (abstract).

The Examiner takes official notice. It is well known in the art that a reactive component such as self inductance in the shunt resistor adds a time constant to the circuit thus slowing the detection response down.

It would have been obvious to one having ordinary skill in the art at the time of this invention to modify the detection circuit disclosed by MIZUNO wherein the shunt resistor (3) is replaced with the thin film resistor disclosed by LEE. The motivation would be to replace the shunt resistor with a resistor with lower self inductance to improve the response time to a current overload.

Regarding claims 5, 9.

MIZUNO in view of LEE discloses a circuit as defined in claim 1.

LEE discloses wherein the first and second traces have multiple legs on each of said faces (see figure 2).

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Regarding claims 6, 7 10

MIZUNO in view of LEE discloses a circuit as defined in claim 1 wherein the shunt resistor having first and second electrically continuous conductor traces disposed in overlying relationship on said opposite faces.

MIZUNO in view of LEE does not disclose the shunt resistor comprising third and forth traces electrically continuous with the first and second traces.

The Examiner takes official notice. The method of manufacturing multi-layered circuits on multi-layered circuit board assemblies is well known. Extending the thin film resistor to have the third and forth traces is merely duplicating the process that formed the first and second traces.

B. Duplication of Parts

In re Harza, 274 F.2d 669, 124 USPQ 378 (CCPA 1960) (Claims at issue were directed to a water-tight masonry structure wherein a water seal of flexible material fills the joints which form between adjacent pours of concrete. The claimed water seal has a "web" which lies ** in the joint, and a plurality of "ribs" ** >projecting outwardly from each side of the web into one of the adjacent concrete slabs. <The prior art disclosed a flexible water stop for preventing passage of water between masses of concrete in the shape of a plus sign (+). Although the reference did not disclose a plurality of ribs, the court held that mere duplication of parts has no patentable significance unless a new and unexpected result is produced.).

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It would have been obvious to one having ordinary skill in the art at the time of this invention to modify the shunt resistor to include the third and forth traces and to interconnect lays with vias (42, LEE column 5, lines 42-45) . The motivation would be to increase the shunt resistor when the space on the first circuit board layer is not available.

Regarding claim 8.

MIZUNO in view of LEE discloses an automotive accessory control circuit comprising the elements claimed wherein the load (L), an accessory of a vehicle, is represented by a lamp symbol.

MIZUNO in view of LEE does not disclose a motor as a load.

The Examiner takes official notice. An accessory load consisting of a motor and the means to drive the motor load is well known in the art.

It would be obvious to one having ordinary skill in the art at the time of this invention to drive an accessory motor with the accessory control circuit. The motivation would be to drive a heater blower.

Claims 2-4, 11, 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over MIZUNO 6,011,416 in view of LEE 6,194,990 and BILOTTI 5,457,364.

Regarding claims 2, 12.

MIZUNO in view of LEE discloses a circuit as defined in claim 1.

MIZUNO in view of LEE does not disclose wherein the detector is a comparator.

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BILOTTI discloses comparator (62) comparing voltage produced by current flow through shunt resistor with a reference voltage (V2) to limit motor current.

It would have been obvious to one having ordinary skill in the art at the time of this invention to modify the current detection circuit wherein the detector is a comparator. The motivation would be to set a current limit with a reference voltage.

Regarding claims 3, 11.

MIZUNO in view of LEE discloses a circuit as defined in claim 1.

MIZUNO in view of LEE does not disclose wherein the detector is an amplifier.

The Examiner takes official notice. It is well known in the art that an amplifier is used as an amplifying element in a comparator and that amplifiers are used to amplify signals.

It would have been obvious to one having ordinary skill in the art at the time of this invention to amplify the voltage from the shunt resistor. The motivation would be to limit the current through the shunt resistor to a lower value.

Regarding claim 4.

MIZUNO in view of LEE and BILOTTI discloses a circuit as defined in claim 3.

MIZUNO discloses a micro-controller (4) having an output connected to the switch device (2) and an input connected to receive the output from the A/D converter (6),

The micro-controller being operative to control the state of the switch device according to a signal developed across the shunt resistor (3).

The above references are silent as to having an electronic amplifier.

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The Examiner takes official notice. It is well known in the art that amplifiers are used in A/D converters to amplify signals.

It would have been obvious that an electronic amplifier is used in the A/D converter. The motivation would be to amplify the level of the signal from the shunt resistor to set a limiting current value.

Response to Arguments

Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication should be directed to Robert L. DeBeradinis whose number is (571) 272-2049. The Examiner can normally be reached Monday-Friday from 8:30 am to 5:00 pm.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Brian Sircus, can be reached on (571) 272-2058. The Fax phone number for this Group is (703) 872-9306.

RLD

MAY 20, 2004


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